

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Junji Nagaoka, et al. : Art Unit:  
Serial No.: To be Assigned : Examiner:  
Filed: Herewith :  
FOR: OPTICAL DISK APPARATUS, :  
METHOD FOR CALCULATION OF :  
AMOUNT OF LENS SHIFT, PROGRAM :  
AND MEDIUM

## PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, D.C. 20231

SIR:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please replace the paragraph at page 4, line 9, with the following:

One aspect of the present invention is an optical disk apparatus comprising:

Please replace the paragraph at page 5, line 1, with the following:

Another aspect of the present invention is an optical disk apparatus, wherein said predetermined rule is expressed by the following Equation 1

Please replace the paragraph at page 5, line 9, with the following:

Still another aspect of the present invention is an optical disk apparatus, wherein said detecting means can detect said disk tilt DT.

Please replace the paragraph at page 5, line 12 with the following:

Yet still another aspect of the present invention is an optical disk apparatus comprising optical head driving means of driving said optical head within the cross section in a radius direction of said optical disk on the basis of the result of said detection of said disk tilt DT, wherein

Please replace the paragraph at page 5, line 20, with the following:

Still yet another aspect of the present invention is an optical disk apparatus, wherein:

Please replace the paragraph at page 6, line 7, with the following:

A further aspect of the present invention is an optical disk apparatus, wherein:

Please replace the paragraph at page 6, line 17, with the following:

A still further aspect of the present invention is an optical disk apparatus, wherein:

Please replace the paragraph at page 7, line 9, with the following:

A yet further aspect of the present invention is an optical disk apparatus, wherein:

Please replace the paragraph at page 7, line 22, with the following:

A still yet further aspect of the present invention is an optical disk apparatus, wherein said tracking error signal is detected in the mirror region of said optical disk.

Please replace the paragraph at page 8, line 1, with the following:

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An additional aspect of the present invention is an optical disk apparatus, wherein said tracking error signal is detected by detecting the average level of said tracking error signal in the OFF-state of tracking control in the data region in the vicinity of the disk radius position of said optical disk where said disk tilt DT or said lens tilt LT is detected.

Please replace the paragraph at page 8, line 8, with the following:

A still additional aspect of the present invention is an optical disk apparatus comprising conveying means of conveying said optical head in a radius direction of said optical disk on the basis of said calculated lens shift LS.

Please replace the paragraph at page 8, line 13, with the following:

A yet additional aspect of the present invention is a method of calculating the amount of lens shift comprising:

Please replace the paragraph at page 9, line 5, with the following:

A still yet additional aspect of the present invention is a program for causing a computer to serve as all or part of said tracking error signal generating means, said detecting means, and said calculating means of said optical disk apparatus.

Please replace the paragraph at page 9, line 10, with the following:

A supplementary aspect of the present invention is a program for causing a computer to carry out all or part of said generating step, said disk tilt detecting step, and said calculating step of said method of calculating the amount of lens shift.

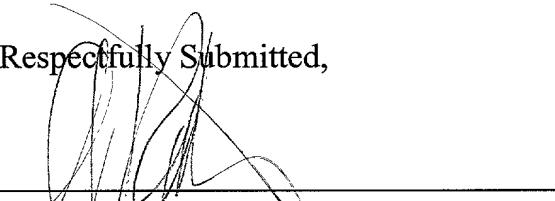
Please replace the paragraph at page 9, line 15, with the following:

A still supplementary aspect of the present invention is a computer-processable medium carrying a program for causing a computer to serve as all or part of said tracking error signal generating means, said detecting means, and said calculating means of said optical disk apparatus.

Please replace the paragraph at page 9, line 21, with the following:

A yet supplementary aspect of the present invention is a computer-processable medium carrying a program for causing a computer to carry out all or part of said generating step, said disk tilt detecting step, and said calculating step of said method of calculating the amount of lens shift.

Respectfully Submitted,

  
Allan Ratner, Reg. No. 19,717  
Attorney for Applicants

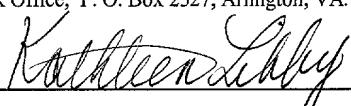
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Kathleen Libby

**VERSION WITH MARKINGS TO SHOW CHANGES MADE****IN THE SPECIFICATION:**

At page 4, line 9:

[The 1<sup>st</sup> invention] One aspect of the present invention is an optical disk apparatus comprising:

At page 5, line 1:

[The 2nd invention] Another aspect of the present invention is an optical disk apparatus [according to 1st invention], wherein said predetermined rule is expressed by the following Equation 1

At page 5, line 9:

[The 3rd invention] Still another aspect of the present invention is an optical disk apparatus [according to 2nd invention], wherein said detecting means can detect said disk tilt DT.

At page 5, line 12:

[The 4th invention] Yet still another aspect of the present invention is an optical disk apparatus [according to 3rd invention] comprising optical head driving means of driving said optical head within the cross section in a radius direction of said optical disk on the basis of the result of said detection of said disk tilt DT, wherein

At page 5, line 20:

[The 5th invention] Still yet another aspect of the present invention is an optical disk apparatus [according to 2nd invention], wherein:

At page 6, line 7:

[The 6th invention] A further aspect of the present invention is an optical disk apparatus [according to 5th invention], wherein:

At page 6, line 17:

[The 7th invention] A still further aspect of the present invention is an optical disk apparatus [according to 2nd invention], wherein:

At page 7, line 9:

[The 8th invention] A yet further aspect of the present invention is an optical disk apparatus [according to 7th invention], wherein:

At page 7, line 22:

[The 9th invention] A still yet further aspect of the present invention is an optical disk apparatus [according to 1st invention], wherein said tracking error signal is detected in the mirror region of said optical disk.

At page 8, line 1:

[The 10th invention] An additional aspect of the present invention is an optical disk apparatus [according to 3rd or 7th inventions], wherein said tracking error signal is detected by detecting the average level of said tracking error signal in the OFF-state of tracking control in the data region in the vicinity of the disk radius position of said optical disk where said disk tilt DT or said lens tilt LT is detected.

At page 8, line 8:

[The 11th invention] A still additional aspect of the present invention is an optical disk apparatus [according to 1st invention] comprising conveying means of conveying said optical head in a radius direction of said optical disk on the basis of said calculated lens shift LS.

At page 8, line 13:

[The 12th invention] A yet additional aspect of the present invention is a method of calculating the amount of lens shift comprising:

At page 9, line 5:

[The 13th invention] A still yet additional aspect of the present invention is a program for causing a computer to serve as all or part of said tracking error signal generating means, said detecting means, and said calculating means of said optical disk apparatus [according to 1st, 2nd, 9th or 11th inventions].

At page 9, line 10:

[The 14th invention] A supplementary aspect of the present invention is a program for causing a computer to carry out all or part of said generating step, said disk tilt detecting step, and said calculating step of said method of calculating the amount of lens shift [according to 12th invention].

At page 9, line 15:

[The 15th invention] A still supplementary aspect of the present invention is a computer-processable medium carrying a program for causing a computer to serve as all or part of said tracking error signal generating means, said detecting means, and said calculating means of said optical disk apparatus [according to 1st, 2nd, 9th or 11th inventions].

At page 9, line 21:

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[The 16th invention] A yet supplementary aspect of the present invention is a computer-processable medium carrying a program for causing a computer to carry out all or part of said generating step, said disk tilt detecting step, and said calculating step of said method of calculating the amount of lens shift [according to 12th invention].

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